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PATENT SPECIFICATION

DRAWINGS ATTACHED

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COMPLETE SPECIFICATION

Upholstery and Plastic Covers therefor

We, DUNLOP RUBBER COMPANY LIMITED, a British Company of 1, Albany Street, London, N.W.1, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to improvements in and relating to plastic covered seats mattresses and the like upholstery.

10 Impermeable plastic upholstery covers cause discomfort to the user since heat and perspiration from the parts of the body adjacent the top of the cover is not dissipated into the atmosphere. In addition when the upholstery is resilient, for example of foam rubber, the covering material is subject to a surface tension effect in use, giving rise to unsightly puddles of stretched material and shallow creases.

The object of the invention is to minimize discomfort to the user and the unsightly effects of localized stretching of the cover material.

According to the invention a plastic upholstery cover comprising a top and sidewalls is moulded with undulations separated by grooves extending at least over the top portion.

The cover may be of thermoplastic sheet, for example polyvinyl chloride, and may be slush-moulded or vacuum-formed to provide the undulations, which may simulate fluting, pleating, or quilting and beading may be provided, or formed, in the groove between adjacent undulations. The depth of the groove is less than twice the width of the groove. The undulations and the beading may extend over the adjacent sidewall of the cover and parallel undulations and beading may be provided on the other sidewalls. Beading may also be provided or formed around the edge of the top portion of the cover simulating the edge seam of a pleated upholstery cover.

Apertures may be provided, in the grooves, for ventilation purposes, and may be formed

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by punching after vacuum-forming of the cover. The apertures may be formed, together with vent holes in the filling, by punching the assembled cover and filling.

The upholstery filling of the cover may include padding material and/or resilient means for example resilient cellular material such as natural or synthetic rubber, polyurethane or PVC foams or springs.

In cases where resilient cellular material is employed it may be formed *in situ* in the cover, supported in the mould in which the cover was formed or in a mould having undulations corresponding to those of the cover, and cores may be provided, extending through the depth, or substantially through the depth, of the upholstery and preferably beneath the grooves between undulations in the cover, thus providing upholstery in which the plastic cover contains resilient cellular material having vent holes extending through, or substantially through, the depth of the upholstery beneath the grooves.

The upholstery may be made as described and claimed in our Specification No. 776,012, the resilient cellular material being bonded to a baseboard which forms the lid of the mould. In cases where a baseboard is provided this may be perforated in positions corresponding to the vent holes in the cellular material and in the case where the resilient cellular material is formed *in situ* within the cover and the baseboard forms the lid of the mould, the perforations are of sufficient size to permit the insertion and withdrawal of the cores which form the vent holes.

The undulations and grooves in the cover assist in ventilating the area of the upholstery which is covered by the person which it supports and reduces discomfort to the user due to the build-up of heat and perspiration. In addition the undulations provide a reserve of cover material which reduces stretching and creasing in use; in the event of some stretching

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being occasioned this is masked to a large degree by the undulating pattern.

Where vent holes are provided these assist in reducing heat build-up adjacent the cover and, since they terminate beneath the grooves in the cover, their presence does not give rise to unduly unsightly markings on the cover.

The invention will now be illustrated by way of example by the following description of a seat having a plastic upholstery cover and its method of manufacture with reference to the accompanying drawings, in which:—

Figure 1 is a perspective view of a car seat, and

Figure 2 is a sectional view along the line A—A¹ of the seat, not showing the legs.

The car seat as shown in Figures 1 and 2 consists of seat baseboard 1 having the desired shape supported on a framework 2 providing the legs 3,4. A layer 5 of a foamed polyurethane composition shaped to follow the contour of the baseboard 1, is supported by the baseboard 1 and bonded thereto, and has a number of rows of holes 6 passing through the layer 5. The holes 6 locate with corresponding holes 7 in the baseboard 1.

The seat is provided with a cover 8 formed in two parts of polyvinyl chloride, one part forming the seat-back 9 and the other part forming the seat base or cushion 10. The seat-back 9 and base 10 are provided with undulations 11 separated by grooves 12 having a depth less than twice the width of the grooves 12. Holes 13 are provided along each groove 12 locating with holes 6 in the layer 5 of foamed polyurethane. The cover 8 for the layer 5 of foamed polyurethane is secured to the baseboard 1 by folding the edge 14 of the cover 8 around the rim 15 of the baseboard 1 and the cover 8 is held in position by metal clips 16.

The seat is manufactured by a method in which a sheet of polyvinyl chloride 5 feet long, 4 feet wide and 0.03 inch thick was located above vacuum mould formers corresponding to the cushion and back seat of an automobile seat and having parallel projections corresponding to the grooves 12. The underside of the sheet was heated for 30 seconds at 150°C. to 160°C. by an infra-red heater and air under pressure was applied to the underside. This caused the sheet to "bubble" and prevented its falling on to the heater. The heater was then removed, the mould formers were raised to the forming position against the sheet and the sheet was vacuum-moulded by reducing the pressure between the sheet and the mould formers. The vacuum was then released and the covers 9, 10 moulded from the sheet were cooled by blowing air over them. When cool the covers 9, 10 were withdrawn from the mould formers and stacked on a jig so as to avoid distortion. The mould formers were lowered and the

heater replaced in preparation for a further moulding cycle.

The moulded two-part cover 8 was next placed in a supporting mould and charged with a polyurethane composition. After setting of the polyurethane foam vent holes 6,13 were punched through the cover and foam, terminating in apertures 13 spaced 6 inches apart along the grooves 12 formed by the projections in the mould formers.

A seat baseboard 1 was secured to a supporting framework 2 and the cover 8 together with the foamed layer 5 placed on the baseboard 1 and secured thereto by means of an adhesive. The edge 14 of the cover was folded around the rim 15 and held in place by clips 16.

WHAT WE CLAIM IS:—

1. A plastic upholstery cover comprising a top and sidewalls moulded with undulations separated by grooves extending at least over the top portion.

2. A plastic upholstery cover comprising polyvinyl chloride having a top and sidewalls moulded with undulations separated by grooves extending at least over the top portion, said grooves having a depth less than twice the width of the groove.

3. A plastic upholstery cover according to claim 1 or 2 in which the undulations extend over the whole surface of the cover.

4. A plastic upholstery cover according to claim 1, 2 or 3 in which the grooves are provided with a beaded portion.

5. A plastic upholstery cover according to any one of the preceding claims in which a bead is provided around the edge of the top portion of the cover.

6. A plastic upholstery cover according to any one of the preceding claims in which the grooves are provided with one or more apertures extending through the cover.

7. A plastic upholstery cover according to any one of the preceding claims which is provided with a filling of a resilient cellular material.

8. A plastic upholstery cover according to claim 7 in which the resilient cellular material is provided with a number of apertures.

9. A plastic upholstery cover according to claim 7 or 8 in which the resilient cellular material is a foamed polyurethane composition.

10. A plastic upholstery cover according to any one of claims 7 to 9 in which the resilient cellular material is bonded to a baseboard in the shape of a seat.

11. A plastic upholstery cover according to claim 10 in which the baseboard is provided with a number of apertures.

12. A method for the manufacture of a plastic upholstery cover which comprises shaping a sheet of plastic material by means of a shaping former having projections corres-

- ponding to grooves desired in the shaped cover applying a foamed resilient material or a foamable resilient material to the interior surface of the shaped cover and allowing the foamed resilient material to set or the foamable resilient material to foam and set.
- 5 13. A method according to claim 12 in which the sheet of plastic material is polyvinyl chloride and is shaped by vacuum-forming.
14. A plastic upholstery cover when prepared by a method according to claim 12 or 13.
15. A seat constructed and arranged substantially as described herein and shown in Figures 1 and 2 of the accompanying drawings.

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Agent for the Applicants.

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1 SHEET

COMPLETE SPECIFICATION

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Fig. 1

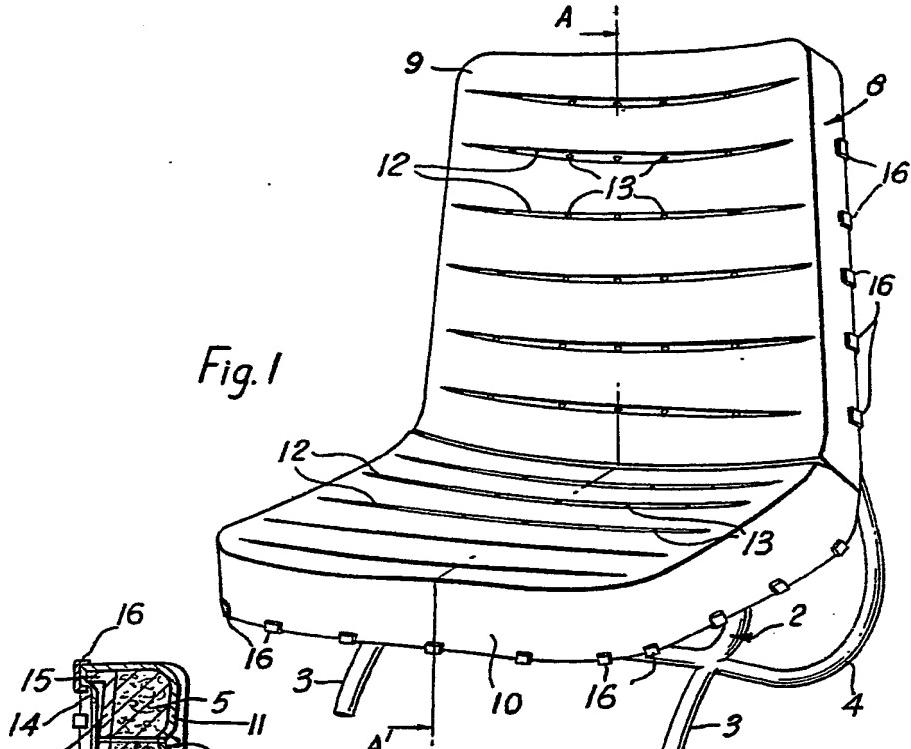


Fig. 2

